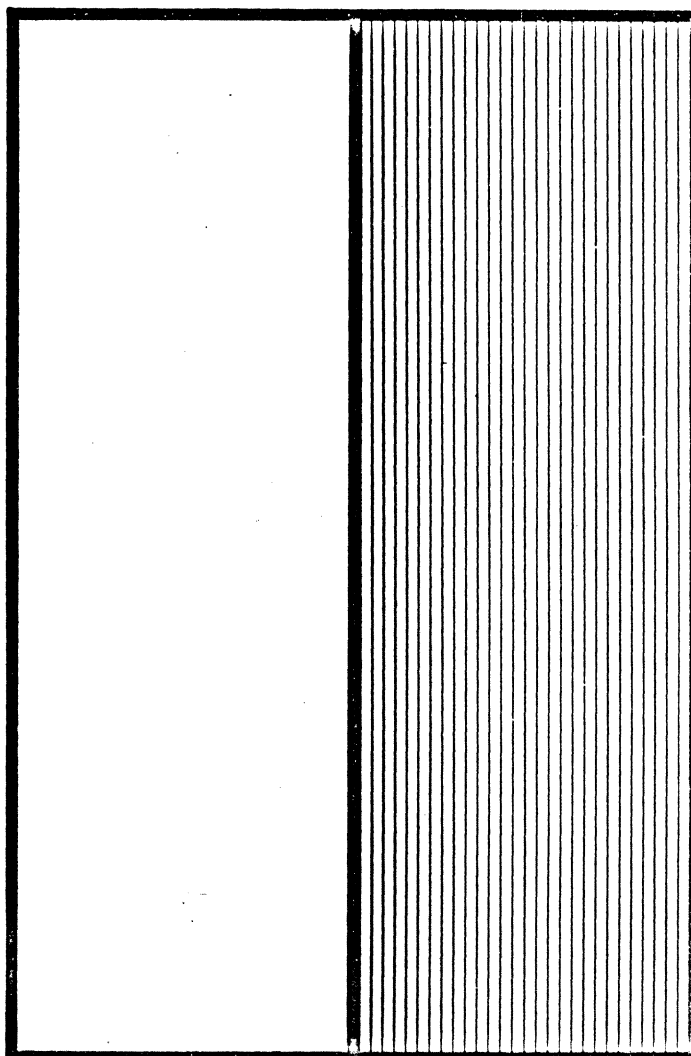


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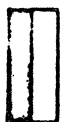


UNIVAC 9400 SYSTEM PROGRAM DESCRIPTION DRAWING

CUSTOMER
ENGINEERING



SPERRY RAND



UNIVAC

DRAWING NO. 4091701

REVISION -

CUSTOMER ENGINEERING
PRODUCT DIAGNOSTIC SOFTWARE

9400 - 5024/8424 or 8425 Disc Functional Test
D2011

SIGNATURE

TITLE

DATE

APPROVAL

APPROVAL

APPROVAL

APPROVAL

REVISION STATISTICS RECORD

4091704

DWG REV	MSTR REV	RELEASE DATE	DESIGNER NAME	EIR NUMBER	FCO NUMBER
-	N		PDS Phila., Pa.	C12607	

REVISION DESCRIPTION RECORD

4091704

REV	DESCRIPTION
-	Release to 9400 Test Library

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1. INTRODUCTION

1.1 Purpose. This document describes a 9400 Maintenance test program for the 5024/8424 of 25 Subsystem.

1.2 Major Objectives. The objective of this test program is to perform a test of the 5024/8424 or 25 Subsystem. Test organization and operator options are intended to satisfy the needs of Design, Quality Control and Field Engineering personnel in checkout, acceptance and maintenance activities.

1.3 Equipment Configurations. All equipment configurations must be connected to a Selector I-O channel of the 9400 Processor. This test will operate the following equipment configuration:

- Disc File Control - Type 5024
- Disc Drive - Type 8424 or 25
- Disc Pack Assembly - Type Fl2 14-01

1.4 Associated Software. This program has DSKH included as an integral part of the program. This is the standard disc handler routine used by all Disc Maintenance test programs. It is the interface between the program and MCR, which performs program load, parameterization, execution, deletion, I-O handling, and message handling.

1.5 Reference Documents

DRAWING	DESCRIPTION
S70040	UNIVAC 9400 Processor, Type 3019-00 and -01.
---	UNIVAC 9400 Dual I-O Selector Channel, Type XXXX-00 and -01.
P10076	Disc File Control, Type 5024. 8424 or 25
4091622	Maintenance Control Routine.
4091623	Parameter and Message Routines.
4091670	5024/8414 Disc Program Handler.

2. FUNCTIONAL DESCRIPTION.

2.1 General Organization. This program is a continuation of the basic functional test of the 5024/6414 disc subsystem. After successfully running program 99101, this program should be run. It tests Space Count, Erase, and Set File Mask commands. Then Writing and Reading of Maximum and Minimum size records are tested.

2.2 Program Description.

2.2.1 Test 1 (Group Test)

Objective - The objective of test 1 is to enable several tests to be internally selected simply by entering subtest 1. Test 1 selects tests 8 thru 11.

Method - The program places bits into the parameter location which tells DSKII which tests to enter.

2.2.2 Test 8 (Space Count and Erase)

Objective - To test the Space Count and Erase commands.

Method - A Space Count command is followed by the various Read commands. A record with a Key is supplied a Count with zero length key, followed by a Read Data command. The key should be read as data. Erase commands are followed by sufficient Reads to insure that only the required data was erased.

2.2.3 Test 9 (Set File Mask)

Objective - To test the Set File Mask command.

Method - A preset chain of 18 channel command words is issued with various mask bits for the Set File Mask command. The different masks should cause the chain to break at different points. Tests insure that the chain was broken at the correct places.

2.2.4 Test 10 (Maximum Record Size)

Objective - To determine maximum number of bytes on a track and to check for disc speed variations.

Method - A Record zero is written large enough to cause track overrun. The size is decreased one byte at a time until the record can be successfully written. Five more bytes, equivalent to 32 microseconds, are subtracted, and the remaining byte count is written 10 times on each track of the cylinder. After each ten writes, the track is read. The entire cylinder then has standard Records zero rewritten on it.

2.2.5 Test 11 (Minimum Record Size)

Objective - To test various End of File commands and one byte records.

Method - Various End of File records are written then read. The entire track is then filled with one data byte records, and then read back. This is repeated on the entire cylinder. The entire cylinder then has standard Records zero rewritten on it.

3. OPERATING PROCEDURES

4091704

The Disc Handler Routine DSKH is used as a standard interface between the program and MCR. All operating procedures described in the DSKH documentation hold equally well for this program.

3.1 Initialization. See DSKH documentation. The program is called by typing in the name D4011.

3.2 Test Program Parameters. See DSKH documentation.

3.3 Test Program Messages. The DSKH documentation describes all test entry and exit messages and a standard I-O error message. Data errors are detected by the program, and all data error messages are contained in the program. Register 9 is used to jump to the various error routines, so its contents are printed with most error messages.

3.3.1 Test 8. The data has the following format:

RECORD	COUNT	KEY	DATA
1	00500004 01040004	D9C5C3F1	F1F1F1F1
2	00500004 02040004	D9C5C3F2	F2F2F2F2
3	00500004 03040004	D9C5C3F3	F3F3F3F3
4	00500004 04040004	D9C5C3F4	F4F4F4F4

Data error messages are of the type:

--R9 XXXXXXXX SRCH ID EQ R1, SP CNT R2, READ KD R2
READ XXXXXXXXXXXXXXXX
XPCT D9C5C3F2F2F2F2F2

--R9 XXXXXXXX ERASED R1, SRCH ID EQ R3, READ CKD R1
READ XXXXXXXXXXXXXXXX
XPCT 0050000401040004D9C5C3F1F1F1F1

3.3.2 Test 9. Except for initializing the track for the file mask test, the standard error message is used.

3.3.3 Test 10. Writing the longest possible Record 0 produces the message:

--LONG R0 - MAX XXXX GOOD XXXX

where MAX is calculated from IC\$RBC from an overrun record, and GOOD is the largest value that does not cause an overrun.

3.3.4 Test 11. This test starts by testing one data byte records and End of File records with and without one Key byte. Error messages will generally show differences in IC\$NES. Other than those the following messages could occur:

--R9 XXXXXXXX TRACK OVERRUN NOT INDICATED
WROTE 127 1-BYTE RECORDS

--R9 XXXXXXXX TRK OVERRUN, UNIT CHECK EXPECTED
IC\$SF XX XPCT OE IC\$SB XXXXXXXXXXXX XPCT 001000C30C00

--R9 XXXXXXXX ERROR WHILE READING ENTIRE TRACK
DATA READ XXXXXXXXXXXXXXXXXXXX XPCT REC nn

where Data read shows a Count field and a 1 byte data field which should contain the record number.

4. SUPPLEMENTARY DATA

4.1 Supplementary Software Information. Each test of the program is entered separately by DSKII and stands alone. It could be extracted from the rest of the program and either be eliminated or assembled by itself with DSKII. The diagrams on the following pages show the general makeup and format of the program, as well as what is being tested by the individual tests.

4.2 Supplementary Hardware Information. See DSKII documentation.

